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NEWS 13 Nov 30 Files VETU and VETB to have open access
NEWS 14 Dec 10 WPINDEX/WPIDS/WPIX New and Revised Manual Codes for 2002
NEWS 15 Dec 10 DGENE BLAST Homology Search
NEWS 16 Dec 17 WELDASEARCH now available on STN
NEWS 17 Dec 17 STANDARDS now available on STN
NEWS 18 Dec 17 New fields for DPCI
NEWS 19 Dec 19 CAS Roles modified
NEWS 20 Dec 19 1907-1946 data and page images added to CA and CPlus

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FILE LAST UPDATED: 17 Jan 2002 (20020117/ED)

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=> s calix? and resocinaren?

4445 CALIX?

3 RESOCINAREN?

L1 3 CALIX? AND RESOCINAREN?

=> d all 1-3

L1 ANSWER 1 OF 3 CA COPYRIGHT 2002 ACS

AN 131:293201 CA

TI Three-component negative-type photoresist based on C-tetraoctyl-calix[4]resocinarene, a cross-linker, and a photo-acid generator

AU Takeshi, Kazumasa; Takahashi, Daisuke; Nakayama, Tomonari; Ueda, Mitsuru

CS Department of Human Sensing and Functional Sensor Engineering Graduate School of Engineering, Yamagata University, Yamagata, 992-8510, Japan

SO Polym. Mater. Sci. Eng. (1999), 81, 85-86
CODEN: PMSEDG; ISSN: 0743-0515

PB American Chemical Society

DT Journal

LA English

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 36, 38, 76

AB We have synthesized four types of calix[4]resorcinarenes

[C4-RA], "C-tetraheptyl-calix[4]resorcinarene [C(7)C4-RA],

C-tetraoctyl-calix[4]resorcinarene [C(8)C4-RA], C-tetranonyl-

calix[4]resorcinarene [C(9)C4-RA], and C-tetraundecyl-

calix[4]resorcinarene [C(11)C4-RA], and evaluated the lithog.

performance of the three-component neg. working photoresist consisting of

C4-RA, 4,4'-methylenebis[2,6-bis(hydroxymethyl)]phenol (MBHP), and

diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate (DIAS). C(8)C4-RA

exhibited a good dissoln. behavior in 2.38 % aq. tetramethylammonium

hydroxide soln., the conventional base developer for photoresist. Therefore, a new neg. working photoresist was formulated by mixing C(8)C4-RA (70 %), MBHP (25 %) as the cross-linker, and the photoacid generator DIAS (10 %), and showed a high sensitivity and a high contrast to i-line by the development with 2.38 % TMAH developer. It was proved that the dissoln. behaviors of **calix[4]resorcinarenes** could be controlled by the modification of the structure.

ST neg working photoresist tetraoctyl **calix** resorcinarene
IT Negative photoresists
Photolithography
Semiconductor device fabrication
(three-component neg.-type photoresist based on C-tetraoctyl-**calix[4]resocinarene**, a cross-linker, and a photo-acid generator)

IT 13653-12-8, 4,4'-Methylenebis[2,6-bis(hydroxymethyl))phenol
RL: TEM (Technical or engineered material use); USES (Uses)
(cross-linker; three-component neg.-type photoresist based on C-tetraoctyl-**calix[4]resocinarene**, a cross-linker, and a photo-acid generator)

IT 75-59-2, Tetramethylammonium hydroxide
RL: TEM (Technical or engineered material use); USES (Uses)
(developer; development of three-component neg.-type photoresist based on C-tetraoctyl-**calix[4]resocinarene**, a cross-linker, and a photo-acid generator)

IT 137308-86-2
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; three-component neg.-type photoresist based on C-tetraoctyl-**calix[4]resocinarene**, a cross-linker, and a photo-acid generator)

IT 112247-07-1P 120578-24-7P 129779-33-5P 134724-39-3P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(prepn. of C-tetraalkyl-**calix[4]resorcinarenes** for three-component neg.-type photoresist)

IT 108-46-3, Resorcinol, reactions 112-31-2, Decanal 112-54-9, Dodecanal 124-13-0, Octanal 124-19-6, Nonanal
RL: RCT (Reactant)
(prepn. of C-tetraalkyl-**calix[4]resorcinarenes** for three-component neg.-type photoresist)

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Allen, R; Proc SPIE 1995, V2438, P250 CA
(2) Bohmer, V; Angew Chem Int Ed Engl 1995, V34, P713
(3) Hogberg, A; J Am Chem Soc 1980, V102, P6046
(4) Hogberg, A; J Org Chem 1980, V45, P4498
(5) Lee, S; Macromolecules 1994, V27, P5154 CA
(6) Lee, S; Macromolecules 1994, V27, P5160 CA
(7) Nakayama, T; Bull Chem Soc Jpn 1998, V71, P2979 CA
(8) Omote, T; Polym Eng Sci 1992, V32, P1634 CA
(9) Shaw, J; IBM J Res Develop 1997, V41, P81 CA
(10) Takeda, N; JP 58116433 Jpn Kokai Tokkyo Koho 1983 CA
(11) Tunstad, L; J Org Chem 1989, V54, P1305 CA
(12) Ueda, M; Chemistry of Materials 1998, V10, P2230 CA
(13) Willson, C; Introduction to Microlithography 2nd ed 1994, P139

L1 ANSWER 2 OF 3 CA COPYRIGHT 2002 ACS
AN 131:221141 CA
TI Three-component negative-type photoresist based on C-tetraoctyl-**calix[4]resocinarene**, a cross-linker, and a photo-acid generator
AU Nakayama, Tomonari; Takahashi, Daisuke; Takeshi, Kazumasa; Ueda, Mitsuru
CS Departemnt of Human Sensing and Functional Sensor Engineering, Graduate School of Engineering, Yamagata University, Yamagata, 992-8510, Japan
SO J. Photopolym. Sci. Technol. (1999), 12(2), 347-352
CODEN: JSTEEW; ISSN: 0914-9244
PB Technical Association of Photopolymers, Japan

DT Journal
 LA English
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 AB **Calix[4]resocinarenes** (C4-RAs), "C-tetraheptyl-calix[4]resorcinarene [C(7)C4-RA], C-tetraoctyl-calix[4]resorcinarene [C(8)C4-RA], C-tetranonyl-calix[4]resorcinarene [C(9)C4-RA], and C-tetraundecyl-calix[4]resorcinarene [C(11)C4-RA]", were synthesized by the acid-catalyzed condensation of resorcinol and alkylaldehyde. The obtained C4-RAs were well-dissolved in common org. solvents and their films were transparent above 300 nm. Therefore, neg. working photoresists based on C4-RAs, 4,4'-methylenebis[2,6-bis(hydroxymethyl)]phenol (MBHP) as a cross-linker, and a photo-acid generator diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate (DIAS) has been developed. Particularly, the resist contg. C(8)C4-RA had the dissoln. property well-controlled by a conventional aq. base developer [2.38 wt% aq. tetramethylammonium hydroxide (TMAH) soln.]. Thus, the photoresist consisting of C(8)C4-RA (70 wt%), MBHP (20 wt%), and DIAS (10 wt%) showed a sensitivity of 7 mJ cm⁻² and a contrast of 6.1 when it was exposed to 365 nm light and postbaked at 130.degree.C for 3 min, followed by developing with the TMAH developer at room temp.

ST resorcinarene photoresist crosslinker photoacid generator
 IT Absorption spectra
 Crosslinking agents
 Dissolution rate
 Lithography
 Optical properties
 Photoresists
 Solubility
 (3-component neg.-type photoresist based on C-tetraoctyl-calix[4]resocinarene, cross-linker, and photo-acid generator)

IT 116780-43-9P 145375-89-9P 212704-26-2P 221013-61-2P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (3-component neg.-type photoresist based on C-tetraoctyl-calix[4]resocinarene, cross-linker, and photo-acid generator)

IT 112-31-2, Decanal 112-54-9, Dodecanal 120-80-9, 2-Hydroxyphenol, reactions 124-13-0, Octanal 124-19-6, Nonanal
 RL: RCT (Reactant)
 (3-component neg.-type photoresist based on C-tetraoctyl-calix[4]resocinarene, cross-linker, and photo-acid generator)

IT 75-59-2, Tetramethylammonium hydroxide
 RL: TEM (Technical or engineered material use); USES (Uses)
 (3-component neg.-type photoresist based on C-tetraoctyl-calix[4]resocinarene, cross-linker, and photo-acid generator)

IT 13653-12-8, 4,4'-Methylenebis[2,6-bis(hydroxymethyl)]phenol
 RL: PRP (Properties)
 (crosslinker; 3-component neg.-type photoresist based on C-tetraoctyl-calix[4]resocinarene, cross-linker, and photo-acid generator)

IT 137308-86-2, Diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate
 RL: PRP (Properties)
 (photoacid generator; 3-component neg.-type photoresist based on C-tetraoctyl-calix[4]resocinarene, cross-linker, and photo-acid generator)

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD

- RE
- (1) Allen, R; Proc SPIE 1995, V2438, P250 CA
 - (2) Bohmer, V; Angew Chem Int Ed 1995, V34, P713
 - (3) Hogberg, A; J Am Chem Soc 1980, V102, P6046
 - (4) Hogberg, A; J Org Chem 1980, V45, P4498
 - (5) Lee, S; Macromolecules 1994, V27, P5154 CA
 - (6) Lee, S; Macromolecules 1994, V27, P5160 CA
 - (7) Nakayama, T; Bull Chem Soc 1998, V71, P2979 CA
 - (8) Omote, T; Polym Eng Sci 1992, V32, P1634 CA
 - (9) Shaw, J; IBM J Res Develop 1997, V41, P81 CA
 - (10) Takeda, N; JP 58-116433 1983 CA
 - (11) Tunstad, L; J Org Chem 1989, V54, P1305 CA

(12) Ueda, M; Chemistry of Materials 1998, V10, P2230 CA
(13) Willson, C; Introduction to Microlithography 1994, P139

L1 ANSWER 3 OF 3 CA COPYRIGHT 2002 ACS
AN 127:270392 CA
TI A negative-working alkaline developable photoresist based on **calix**
[4]**resocinaren**es, a crosslinker, and a photoacid generator
AU Ueda, Mitsuru; Takahashi, Daisuke; Nakayama, Tomonari; Haba, Osamu
CS Department of Human Sensing and Functional Sensor Engineering, Graduate
School of Engineering, Yamagata University, Yonezawa, 992, Japan
SO Polym. Mater. Sci. Eng. (1997), 77, 455-456
CODEN: PMSEDG; ISSN: 0743-0515
PB American Chemical Society
DT Journal
LA English
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)
Section cross-reference(s): 76
AB The classical diazonaphthoquinone/novolak resist is still the workhorse of
the microelectronics industry. We are interested in **calixaren**es
for resist materials as the substitute of novolak resin because of
monodisperse materials and have developed a neg. working photoresist based
on **calix**[4]resorcinarene, 4,4'-methylenebis[2,6-
bis(hydroxymethyl)]phenol (MBHP) as cross-linker, and photoacid generator
diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate (DIAS). A clear
neg. pattern was obtained when it was exposed to 365 nm UV light and post
baked at 130.degree.C, followed by developing with a 0.5% aq.
tetramethylammonium hydroxide (TMAH) soln. at room temp. Furthermore, to
control the soly. to a TMAH developer, **calix**
[4]methylresorcinarene as the matrix resin for the 2.38% TMAH aq. soln.
has also been developed.
ST neg alk developable photoresist **calixresocinarene** photolithog
IT Photolithography
Photoresists
(neg.-working alk. developable photoresist based on **calix**[4]
resocinarenes, crosslinker, and photoacid generator)
IT Metacyclophanes
RL: TEM (Technical or engineered material use); USES (Uses)
(neg.-working alk. developable photoresist based on **calix**[4]
resocinarenes, crosslinker, and photoacid generator)
IT 13653-12-8, 4,4'-Methylenebis[2,6-bis(hydroxymethyl)]phenol
RL: TEM (Technical or engineered material use); USES (Uses)
(crosslinker; neg.-working alk. developable photoresist based on
calix[4]**resocinaren**es, crosslinker, and photoacid
generator)
IT 75-59-2, Tetramethylammonium hydroxide
RL: TEM (Technical or engineered material use); USES (Uses)
(developer; neg.-working alk. developable photoresist based on
calix[4]**resocinaren**es, crosslinker, and photoacid
generator)
IT 65338-98-9 138233-39-3
RL: TEM (Technical or engineered material use); USES (Uses)
(neg.-working alk. developable photoresist based on **calix**[4]
resocinarenes, crosslinker, and photoacid generator)
IT 137308-86-2, Diphenyliodonium 9,10-dimethoxyanthracene-2-sulfonate
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; neg.-working alk. developable photoresist based
on **calix**[4]**resocinaren**es, crosslinker, and
photoacid generator)

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<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

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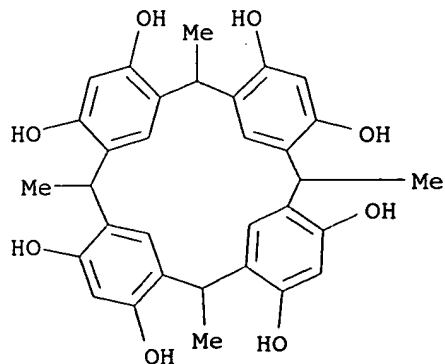
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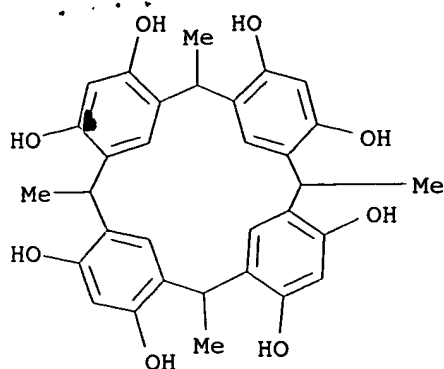
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 CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-4,6,10,12,16,18,22,24-octol,2,8,14,20-tetramethyl- (9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN C-Methylcalix[4]resorcinarene
 FS 3D CONCORD
 MF C32 H32 O8
 CI COM
 LC STN Files: BEILSTEIN*, CA, CAPLUS, CASREACT, CHEMCATS, GMELIN*, PIRA, TOXCENTER, TOXLIT, USPATFULL
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CA SUBSCRIBER PRICE	0.00	-1.77

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